

Science is fun – embedding experimental science activities and eLearning into kindergarten educational contexts: a case study

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Abstract - Science is fun... - how could anyone have doubts about that?

What if we could gather this potential of funny moments about science, combine it with the educational potential of eLearning, and develop one Kindergarten Teachers training course aimed to promote competences of educational contexts design embedding experimental science activities and eLearning strategies and resources into kindergarten educational contexts (also promoting digital literacy, ICT use effectiveness, and trainees' skills of autonomous lifelong learning, on web 3.0 philosophy) ?

The research (PhD research)

Aim:, To research successful characteristics of adults lifelong training eLearning contexts in Portugal.

Methodology: Multiple cases study (qualitative research)

Instruments: exploratory interviews, participant observation, cyber-observation, documents analysis, after-training questionnaire

eLearning concept

eLearning is a learner-focused approach to the use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services, as well as remote exchanges and collaboration. (Commission of the European Communities, 2008, p. 5)

eLearning training context design – Key ideas

➤ Kindergarten Teachers – the training environment

- face-to-face 25 h course
- expected (and real) participants with low level ICT skills
- active teaching-learning constructivist methodologies
- trainer frequently acting as a tutor
- eLearning embedded training context
- systematical use of learning materials and training activities on digital – support, whenever possible
- a LMS platform page as the digital organizational backbone throughout the course (Moodle);
- contextualized use of software and hardware on training environment, preferably free use resources / OER
- reflexive use of resources on training activities, intentionally and systematically selected to foster later competences transfer into teachers' working contexts
- training activities both on trainee/ student and trainer/ learning environments designer perspectives
- a practice community, with powered growth by frequent face-to-face group work and digital sharing practices
- intentional training limits expansion into internet unlimited potential, on direct and objective proposals and trainee defined other options

➤ Kindergarten Teachers – experimental science activities and ICT use proposals

- training activities resources selection criteria, a “best choice” approach evaluated from:
 - educational effectiveness
 - low or no cost
 - easy availability or access
 - safety on use
 - 4 R's perspective (reduce, reuse, recycle, reinvent).
- development of experimental science activities :
 - ✓ previewing and respecting safety conditions
 - ✓ with scientific theoretical information prepared :
 - ✓ to be understood by kindergarten non-science teachers
 - ✓ to be later explained to kindergarten children
 - ✓ to promote early science appeal and attitudes
 - ✓ to explore the fun about science
- ICT use to keep records, to communicate and share results and practices.



Results

- Achievement /development of competences during the training course;
- Empowerment of the trainees on their learning skills and professional competences
- Participants context reactions
 - Kindergarten Teachers: initial resistance followed by progressive adhesion;
 - Explicit satisfaction for the learning and skills development;
- Later competences transfer into teachers working context (auto perceived for some, expected for the most)
- Frequent trainees' sharing will of pursuing later continuous training on similar issues / contexts.

References

COMMISSION OF THE EUROPEAN COMMUNITIES. (2008, Novembro 9). The use of ICT to support innovation and lifelong learning for all - A report on progress. Commission Staff working document.

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Conclusion (or starting point...)

ICT use on educational contexts is becoming a frequent professional “obligation”. Though, most of actual active teachers and trainers aren't yet enough skilled in order to use ICT with confidence and educational effectiveness.

The research showed that if the training contexts are well designed, embedding ICT on the overall training context, both on teaching and learning sides, empowering the trainees on their learning performances upon constructivist training approaches, promoting training activities with different difficulty levels but systematically thought to foster later transference into working contexts, that will result on educational success – which means, in the context of this study, both success for the learner and for the organization where he/she belongs, which will benefit with the improvement of knowledge and skills patrimony of their collaborators.

Besides, promoting ICT skills is a powerful tool for each one to keep up with the actual demands of the global labor markets, becoming able to develop autonomous and expectedly necessary future lifelong learning events, gathering the potential of the so-called web 3.0.